## REMARKS

Claims 1-33, 47 and 48 are the claims pending in the application. Applicant acknowledges that the approval of the drawings. Applicant has clarified the minor conforming changes to the Specificaiton as requested. Finally, Applicant respectfully traverses the prior art rejection based on the following discussion.

### I. The Prior Art Rejection

Claims 1-33, 47 and 48 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Takits ("Takit")(EP 0959057A1) in view of Brown, et al. ("Brown")(U.S. Patent No. 4,764,316), and further in view of Hodgson ("Hodgson")(U.S. Patent No. 3,377,955).

A. The Rejection Based on Takit in view of Brown in further view of Hodgson

Regarding independent claims 1, 10, 24 and 48, and related dependent claims 2-9, 11-23, 25-33 and 47, first the references, separately, or in combination, fail to disclose, teach or suggest a reason or motivation for being combined.

In particular, Takit pertains to an oxidizer coated with inorganic particles and fuel composition, and related method, for reducing the sensitivity of the oxidizer to mechanical energy. (See Takit at Abstract; Column 1, lines 5-32 and Column 2, lines 1-18).

By contrast, Brown pertains to a process for forming solid propellant grains with a low total weight percentage of fuel particulates where the process is focused on

overcoming manufacturing difficulties and limitations in order to produce better quality propellant grains. (See Brown at Abstract; and Column 1, lines 5-10 and lines 35-63).

In further contrast, Hodgson pertains to coated fuel cores with metal-containing fuel particles, which can be safely incorporated in rocket propellant compositions for improved burning performance. (See Hodgson at Column 1, lines 15-18 and lines 51-64).

Nothing within Takit, which relates to an oxidizer coated with inorganic particles and fuel composition for reducing the sensitivity of the oxidizer to mechanical energy, suggests a process, which overcomes manufacturing difficulties, for forming solid propellant grains as disclosed in Brown. Further, nothing within Hodgson, which relates to coated fuel particles for improved burning performance of rocket propellant compositions, pertains to the above technology of Brown nor Hodgson. Indeed, the above three technologies with different focuses appear to use different manufacturing techniques, which teach away from each other, and combining such references may likely destroy the function of these technologies. Therefore, Takit's technology cannot be effectively combined with Brown alone or in combination with Hodgson. Thus, one of ordinary skill in the art would not have combined these references absent hindsight.

Second, even assuming that the references would have been combined, the references do not disclose, teach or suggest the features of independent claim 1, including the substantially uncoated fuel particles constituting at least 40 weight percent of total composition weight of the pressable explosive composition. Similarly, the references do not disclose, teach or suggest the features of independent claim 10, including the free fuel particles constituting at least 40 weight percent of total composition weight of the pressed

thermobaric explosive. Further, the references do not disclose, teach or suggest the features of independent claim 24, including the pressed thermobaric explosive includes at least 40 weight percent of free particles of total composition weight of the article. The references also do not disclose, teach or suggest the features of independent claim 48, including the free fuel particles are at least 40 weight percent of total composition weight of the pressed thermobaric explosive. (See Application, Paragraph 6, lines 5-10; Page 10, lines 14-18; Page 11, lines 14-18; and Pages 22-23, Table 1).

Indeed, Applicant agrees with the Office Action, which expressly indicates that Takit fails to disclose, teach or suggest "the fuel being at least 40 percent weight and the oxidizer being a nitramine," features of independent claims 1, 10, 24 and 48. Further, as required by the MPEP, the Office Action also does not explicitly indicate where Takit teaches or suggests "free fuel particles being unencapsulated," a feature of Applicant's claimed invention. Indeed, Takit only discloses the various types of fuel being mixed with the coated oxidizer depending on the use, and thus does not teach or suggest any structural features of the free fuel particles, let alone, being unencapsulated. Thus, Applicant traverses the above assertion regarding claim 47.. Accordingly, Takit is deficient. (See Office Action, Page 3, Second Paragraph, lines 6-16; and Page 6, Second Paragraph, lines 5-6; Takit, Column 4, Paragraph [0030]; and Application, Page 19, line 12-Page 21, line 4).

Brown is also deficient.

Indeed, Applicant agrees with the Office Action that Brown discloses a fuel, an oxidizer and a binder. Applicant further agrees with the clear assertion in the Office Action that Brown does not teach or suggest a fuel being at least 40 percent weight as the

Office Action relies on Hodgson to complete this missing feature of Applicant's claimed invention. (See Office Action, 3, Paragraph 2, lines 6-16; and Brown, Column 5, lines 34-52).

To be sure, as discussed in the previous Amendment of August 17, 2006, Figures 1-2B of Brown merely disclose or suggest a conventional process for preparing solid propellant grains using thermoplastic binders and products thereof. This process is focused on providing cast propellant grains with thermoplastic elastomer binders to ensure a high-density propellant grain with energetic particulates uniformly distributed, which can be scaled up to produce large rocket motors. Consistent with this focus, and as suggested by Applicant, conventional systems like Brown provide a diminished return of increasing fuel content where the fuel content typically does not exceed 35 weight percent. Thus, conventional thermobaric weapons like Brown are designed relatively large in size to furnish adequate fuel, which results in weight and size limitations. (See Brown at Abstract; Column 1, lines 5-10; Column 1, line 35-Column 2, line 2; Column 2, lines 35-40; Column 5, lines 10-53; and Figures 1-2A; and Application, Page 4, lines 2-9).

Brown, as previously discussed, clearly discloses that the energetic particulates would, for example, only be about 25 weight percent. Further, Brown suggests that the plasticizer may be up to 18 weight percent of the propellant charge, thus leaving a small weight percentage of the fuel particulates. Indeed, Brown explicitly indicates that the particulates, including the fuel particulates, are a "relatively low percent of the total formulation." Since Brown explicitly teaches a low weight percentage of particulates, including fuel particulates, Brown clearly teaches away from modifying this preferred

formulation to have aluminum at 40 weight percent like Applicant's claimed invention. Therefore, Brown does not disclose or suggest, including free fuel particles constituting at least 40 weight percent of the pressed thermobaric explosive. (See Brown, Column 2, lines 50-65; Column 3, lines 36-46; and Column 5, lines 34-39 (with emphasis)).

For emphasis, Brown teaches a conventional process for forming solid propellant grains with a low total weight percentage of fuel particulates, let alone, free fuel particles constituting 35 weight percent of a pressed thermobaric explosive, let alone, 40 weight percent of a pressed thermobaric explosive, whereas Applicant discloses a pressed thermobaric explosive where the free fuel particles constitute at least 40 weight percent of the pressed thermobaric explosives as claimed. (See above).

Please note, Applicant teaches the use of "unencapsulated free fuel particles," where the binder of the oxidizer does not encapsulate and tightly hold the fuel particles as a continuous coating. As a result, this relative freedom of the fuel particles is at least partially responsible for improved properties of the pressed thermobaric explosives. In contrast, Brown teaches a conventional structure, and related method, of binder-coated fuel particles where the fuel particles are coated as part of the blending process prior to packing the dry blend into a mold or casing, what is analogous to pressing. Therefore, Applicant traverses the assertion in the Office Action that Brown discloses or suggests, including free fuel particles being unencapsulated. (See Application, Page 19, line 12-Page 21, line 4; and Brown, Column 5, lines 34-65).

Hodgson is also deficient.

Indeed, Figures 1-15 of Hodgson merely disclose or suggest a conventional coated tablet containing metal-containing fuel particles for safe incorporation into large

rocket propellant compositions for improved burning performance. In particular, a coated tablet 10 includes a fuel core 12, which contains high energy delivering lithium hydride particles 14 dispersed within a lithium binder 15, where a tough coating 17 is provided around each fuel core 12. The coated tablets 10 are poured in and surrounded by an oxidizer 8-binder 9 mixture. Hodgson discloses a "preferred" composition for a large rocket including a coated exotic fuel tablet of 15-35 parts by weight, oxidizer particles of 60-80 parts by weight, and a rubbery binder of 20-40 parts by weight. More particularly, and contrary to the assertion in the Office Action, Hodgson discloses metal and/or metalloid particles 14 incorporated into a pure fuel core 12 "preferably" including about 35-95 percent by weight of the fuel layer and the balance is preferably about 5-65 percent by weight of the binder 15. Accordingly, Hodgson only discloses that, at best, the fuel tablet is 35 parts by weight presumably of the total weight of the composition where, at best, the fuel is only 95 percent by weight of the fuel layer. (See Hodgson, Column 1, lines 51-56; Column 4, lines 15-56; Column 11, lines 40-57; Figures 1-5 (with emphasis); and Office Action, Page 3, Paragraph 2, lines 12-16).

In contrast, Applicant, as previously discussed, discloses that the free fuel particles (or substantially uncoated fuel particles) constitute at least 40 weight percent of the total weight of the pressable explosive composition. Therefore, Hodgson certainly does not teach or suggest including free fuel particles constituting at least 40 weight percent of total composition weight of the pressed thermobaric explosive. (See Previous Amendment of August 17, 2006).

Finally, please note, Hodgson discloses that the fuel core 12 includes fuel particles 14 mixed with a binder 15. The fuel core 12 is coated by a coating 17 to form a

coated tablet 10 where the coated tablets 10 are embedded in an oxidizer 8-binder 9 mixture. Accordingly, the fuel particles 14 are surrounded and encapsulated within the coated tablets 10 where the coated tablets 10 are surrounded and encapsulated within the oxidizer 8-binder 9 mixture. (See Hodgson above).

In contrast, Applicant discloses that the binder coated oxidizer does not encapsulate the free fuel particles. Therefore, Applicant's invention is structurally and functionally distinct from the Hodgson invention. (See above).

For at least the reasons outlined above, Applicants submits that none of Takit, Brown or Hodgson, alone or in combination, do not disclose, teach or suggest, the features of independent claim 1, including the substantially uncoated fuel particles constituting at least 40 weight percent of total composition weight of the pressable explosive composition. Similarly, the references do not disclose, teach or suggest the features of independent claim 10, including the free fuel particles constituting at least 40 weight percent of total composition weight of the pressed thermobaric explosive. Further, the references do not disclose, teach or suggest the features of independent claim 24, including the pressed thermobaric explosive includes at least 40 weight percent of free particles of total composition weight of the article. The references also do not disclose, teach or suggest the features of independent claim 48, including the free fuel particles are at least 40 weight percent of total composition weight of the pressed thermobaric explosive.

For the reasons stated above, the claimed invention, and the invention as cited in independent claims 1, 10, 24, and 48 and related dependent claims 2-9, 11-23, 25-33, and 47, is fully patentable over the cited references.

## II. Formal Matters and Conclusions

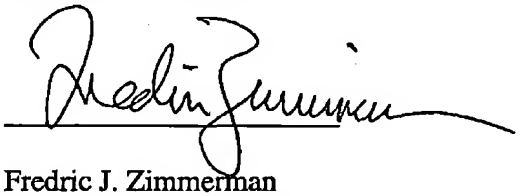
In view of the foregoing, Applicants submit that claims 1-33, 47 and 48, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayment to Attorney's Deposit Account Number 50-1114.

Respectfully submitted,

Dated: 27 April 2007



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